THE ASTROPHYSICAL JOURNAL CONTENTS OF VOLUME 456, PART 1

1996 JANUARY 1, Number 1

	Page	Fiche
GALAXY FORMATION IN A CDM + Λ UNIVERSE. I. PROPERTIES OF GAS AND GALAXIES Nickolay Y. Gnedin	1	1-B1
GALAXY FORMATION IN A CDM + Λ UNIVERSE. II. SPATIAL DISTRIBUTION OF GAS AND GALAXIES · Nickolay Y. Gnedin	34	1-D9
SELF-SIMILAR EVOLUTION OF GRAVITATIONAL CLUSTERING: IS $n = -1$ SPECIAL? Bhuvnesh Jain & Edmund Bertschinger	43	1-E7
ANALYSIS OF GALAXY MORPHOLOGY AND EVOLUTION USING THE POINTWISE DIMENSION Jason S. Best, Jane C. Charlton, & Gottfried Mayer-Kress	55	1-F8
EVOLUTION OF THE POTENTIAL IN COSMOLOGICAL GRAVITATIONAL CLUSTERING Adrian L. Melott, B. S. Sathyaprakash, & Varun Sahni	65	1-G7
EFFECTS OF DARK MATTER ON THE STABILITY OF SUPERMASSIVE STARS Gail C. McLaughlin & George M. Fuller	71	2-A2
THE INTRAGROUP MEDIUM IN POOR GROUPS OF GALAXIES John S. Mulchaey, David S. Davis, Richard F. Mushotzky, & David Burstein	80	2-B1
INHOMOGENEOUS PRIMORDIAL NUCLEOSYNTHESIS AND NEW ABUNDANCE CONSTRAINTS ON $\Omega_b h^2$ G. J. Mathews, T. Kajino, & M. Orito	, 98	2-C8
STOCHASTIC PARTICLE ACCELERATION NEAR ACCRETING BLACK HOLES Charles D. Dermer, James A. Miller, & Hui Li	106	2-D5
STRUCTURE OF ACCRETION DISKS WITH OPTICALLY THICK-OPTICALLY THIN TRANSITIONS I. V. Artemova, G. S. Bisnovatyi-Kogan, G. Björnsson, & I. D. Novikov	119	2-E7
CONSTRAINTS ON THE EXTRAGALACTIC BACKGROUND LIGHT FROM GAMMA-RAY OBSERVATIONS OF HIGH-REDSHIFT QUASARS Piero Madau & E. Sterl Phinney	124	2-F1
A 21 CENTIMETER ABSORBER IDENTIFIED WITH A SPIRAL GALAXY: HUBBLE SPACE TELESCOPE FAINT OBJECT SPECTROGRAPH AND WIDE-FIELD CAMERA OBSERVATIONS OF 3CR 196 Ross D. Cohen, E. A. Beaver, Athanassios Diplas, Vesa T. Junkkarinen, Thomas A. Barlow, & Ronald W. Lyons	132	2-F12
IS THE X-RAY SPECTRUM OF THE SEYFERT 2 GALAXY NGC 5252 INTRINSICALLY FLAT? M. Cappi, T. Mihara, M. Matsuoka, W. Brinkmann, M. A. Prieto, & G. G. C. Palumbo	141	2-G12
HIGH-RESOLUTION \it{IRAS} MAPS AND INFRARED EMISSION OF M31. 1. MORPHOLOGY AND SOURCES Cong Xu & George Helou	152	3-A13
HIGH-RESOLUTION IRAS MAPS AND INFRARED EMISSION OF M31. II. DIFFUSE COMPONENT AND INTERSTELLAR DUST Cong Xu & George Helou	163	3-C1
THE INTERMEDIATE STELLAR MASS POPULATION IN NGC 604 DETERMINED FROM HUBBLE SPACE TELESCOPE IMAGES Deidre A. Hunter, William A. Baum, Earl J. O'Neil, Jr., & Roger Lynds	174	3-D1
THE X-RAY LIGHT CURVE OF THE VERY LUMINOUS SUPERNOVA SN 1978K IN NGC 1313 Eric M. Schlegel, R. Petre, & E. J. M. Colbert	187	3-E6
STELLAR KINEMATICS AND THE BLACK HOLE IN THE GALACTIC CENTER Joseph W. Haller, M. J. Rieke, G. H. Rieke, P. Tamblyn, L. Close, & F. Melia	194	3-F2

CONTENTS

	Page	Fich
THE PECULIAR POPULATION OF HOT SPOTS AT THE GALACTIC CENTER Peter Tamblyn, G. H. Rieke, Margaret Murray Hanson, L. M. Close, D. W. McCarthy, Jr., & M. J. Rieke	206	3-G3
CN ZEEMAN OBSERVATIONS OF MGLECULAR CLOUD CORES Richard M. Cruicher, Thomas H. Troland, Bernard Lazareff, & Ilya Kazès	217	4-A1
WFPC2 STUDIES OF THE CRAB NEBULA. III. MAGNETIC RAYLEIGH-TAYLOR INSTABILITIES AND THE ORIGIN OF THE FILAMENTS J. Jeff Hester, James M. Stone, Paul A. Scowen, Byung-Il Jun, John S. Gallagher III, Michael L. Norman, Gilda E. Ballester, Christopher J. Burrows, Stefano Casertano, John T. Clarke, David Crisp, Richard E. Griffiths, John G. Hoessel, Jon A. Holtzman, John Krist, Jeremy R. Mould, Ravi Sankrit, Karl R. Stapelfeldt, John T. Trauger, Alan Watson, & James A. Westphal	225	4-A1
SITES OF RELATIVISTIC PARTICLE ACCELERATION IN SUPERNOVA REMNANT CASSIOPEIA A M. C. Anderson & L. Rudnick	234	4-C2
WATER MASER EMISSION FROM MAGNETOHYDRODYNAMIC SHOCK WAVES Michael J. Kaufman & David A. Neufeld	250	4-D9
UNRESOLVED WIND-DRIVEN SHELLS AND THE SUPERSONIC VELOCITY DISPERSION IN GIANT H II REGIONS Guillermo Tenorio-Tagle, Casiana Muñoz-Tuñón, & Roberto Cid-Fernandes	264	4-E1
ON THE RADIAL ORBIT INSTABILITY Pablo M. Cincotta, Josué A. Núñez, & Juan C. Muzzio	274	4-F10
THE EFFECT OF GRAVITATIONAL INSTABILITIES ON PROTOSTELLAR DISKS Gregory Laughlin & Michał Różyczka	279	4-G4
HIGH-RESOLUTION SPECTROSCOPY OF Brγ EMISSION IN YOUNG STELLAR OBJECTS Joan Najita, John S. Carr, & Alan T. Tokunaga	292	5-A6
FAST ROTATION OF NEUTRON STARS Jean-Pierre Lasota, Pawet Haensel, & Marek Artur Abramowicz	300	5-B3
DISCOVERY OF THREE RADIO PULSARS FROM AN X-RAY-SELECTED SAMPLE Alex Zepka, James M. Cordes, Ira Wasserman, & Scott C. Lundgren	305	5-B12
LONG-TERM BEHAVIOR OF CENTAURUS X-3 OBSERVED WITH THE ALL SKY MONITOR ON BOARD GINGA Hiroshi Tsunemi, Shunji Kitamoto, & Keisuke Tamura	316	5-C1
THE LARGE MAGELLANIC CLOUD SUPERSOFT X-RAY BINARY RX J0513.9-6951 David Crampton, J. B. Hutchings, A. P. Cowley, P. C. Schmidtke, T. K. McGrath, D. O'Donoghue, & M. K. Harrop-Allin	320	5-D6
STELLAR MODELS AND LUMINOSITY FUNCTIONS FOR THE POPULATION II MAIN SEQUENCE DOWN TO ITS LOWER END Francesca D'Antona & Italo Mazzitelli	329	5-E1
MODELING OF THE DUST AND GAS OUTFLOWS FROM OH 26.5+0.6: THE SUPERWIND K. Justianoni, C. J. Skinner, A. G. G. M. Tielens, M. Meixner, & F. Baas	337	5-E12
LONG-TERM NONLINEAR THERMAL EFFECTS IN THE PULSATION OF MIRA VARIABLES A. Ya'ari & Y. Tuchman	350	5-G1
THE LOW-MASS DOUBLE-LINED ECLIPSING BINARY CM DRACONIS: A TEST OF THE PRIMORDIAL HELIUM ABUNDANCE AND THE MASS-RADIUS RELATION NEAR THE BOTTOM OF THE MAIN SEQUENCE Travis S. Metcalfe, Robert D. Mathieu, David W. Latham, & Guillermo Torres	356	5-G1
VARIATIONS OF β COMAE THROUGH A MAGNETIC MINIMUM David F. Gray, Sallie L. Baliunas, G. W. Lockwood, & Brian A. Skiff	365	6-A8
ULTRAVIOLET OPACITY AND FLUORESCENCE IN SUPERNOVA ENVELOPES Hongwei Li & Richard McCray	370	6-B2
THE GASEOUS SULFUR DIOXIDE ABUNDANCE OVER IO'S LEADING AND TRAILING HEMISPHERES: HST SPECTRA OF IO'S C 1B_2 – X 1A_1 BAND OF SO ₂ NEAR 2100 Å L . M . $Trafton$, J . J . $Caldwell$, C . $Barnet$, & C . C . $Cunningham$	384	6-C5
THE INFLUENCE OF THE TEMPERATURE PROFILE ON THE MAGNETOHYDRODYNAMIC MODES OF A PROMINENCE-CORONA SYSTEM R. Oliver & J. L. Ballester	393	6-D3
DISCRETE HIGH-FREQUENCY p-MODES Rekha Jain & B. Roberts	399	6-D8
OVRO, BBSO, BATSE, AND YOHKOH OBSERVATIONS OF A TWIN SOLAR FLARE H. Wang, D. E. Gary, H. Zirin, N. Nitta, R. A. Schwartz, & T. Kosugi	403	6-E1

CONTENTS

ERRATUM	Page	Fiche
TWO CLASSES OF GAMMA-RAY-EMITTING ACTIVE GALACTIC NUCLEI Charles D. Dermer & Neil Gehrels	412	6-F3
INSTRUCTIONS TO AUTHORS	i	6-F7
1996 JANUARY 10, Number 2		
LARGE-ANGLE POLARIZATION AND ANISOTROPY OF THE COSMIC MICROWAVE BACKGROUND RADIATION AND REIONIZATION Ka Lok Ng & Kin-Wang Ng	413	9-C1
CLUSTER ACCRETION SHOCKS AS POSSIBLE ACCELERATION SITES FOR ULTRA-HIGH-ENERGY PROTONS BELOW THE GREISEN CUTOFF Hyesung Kang, Dongsu Ryu, & T. W. Jones	422	9-C13
A MASSIVE z = 0.088 SUPERCLUSTER AND TESTS OF STARBURST GALAXY EVOLUTION AT THE NORTH ECLIPTIC POLE M. L. N. Ashby, Perry B. Hacking, J. R. Houck, B. T. Soifer, & E. W. Weisstein	428	9-D8
ABELL 2163: TEMPERATURE, MASS, AND HYDROSTATIC EQUILIBRIUM M. Markevitch, R. Mushotzky, H. Inoue, K. Yamashita, A. Furuzawa, & Y. Tawara	437	9-E6
EXPERIMENTAL LIMITS ON THE DENSITY OF DARK MATTER IN THE SOLAR SYSTEM Oyvind Grøn & Harald H. Soleng	445	9-F3
AN ESTIMATE OF THE MOTION-INDUCED DIPOLE MOMENT IN THE SPATIAL DISTRIBUTION OF COSMOLOGICAL GAMMA-RAY BURSTS J. J. Brainerd	449	9-F10
SOFT X-RAY OBSERVATIONS OF A COMPLETE SAMPLE OF X-RAY-SELECTED BL LACERTAE OBJECTS Eric S. Perlman, John T. Stocke, Q. Daniel Wang, & Simon L. Morris	451	9-G2
THE SOFT X-RAY SPECTRAL SHAPE OF X-RAY-WEAK SEYFERT GALAXIES Brian Rush & Matthew A. Malkan	466	10-A6
ON THE EVOLUTION OF THE LIGHT ELEMENTS. I. D, ³ He, AND ⁴ He Brian D. Fields	478	10-B7
VERY LUMINOUS GIANT STARS IN THE CENTRAL REGION OF M33 1. S. McLean & T. Liu	499	10-D3
THE COMPOSITION GRADIENT IN M101 REVISITED. I. H II REGION SPECTRA AND EXCITATION PROPERTIES Robert C. Kennicutt, Jr., & Donald R. Garnett	504	10-D12
PRODUCTION OF ANTIPROTONS IN INTERSTELLAR SPACE BY PROPAGATING COSMIC RAYS UNDER CONDITIONS OF DIFFUSIVE REACCELERATION M. Simon & U. Heinbach	519	10-F2
LIGHT ISOTOPES, EXTINCT RADIOISOTOPES, AND GAMMA-RAY LINES FROM LOW-ENERGY COSMIC-RAY INTERACTIONS Reuven Ramaty, Benzion Kozlovsky, & Richard E. Lingenfelter	525	10-F11
10-30 MICRON MAPS OF THE CENTRAL 5 PARSECS OF THE GALAXY: HEATING OF THE CAVITY AND NEUTRAL GAS DISK C. M. Telesco, J. A. Davidson, & M. W. Werner	541	11-A2
EXTINCTION AND POLARIZATION BY ELLIPSOIDAL PARTICLES IN THE INFRARED Masafumi Matsumura & Munezo Seki	557	11-B8
COBE/DIRBE OBSERVATIONS OF THE ORION CONSTELLATION FROM THE NEAR- TO FAR-INFRARED W. F. Wall, W. T. Reach, M. G. Hauser, R. G. Arendt, J. L. Weiland, G. B. Berriman, C. L. Bennett, Eli Dwek, D. Leisawitz, P. M. Mitra, Sten F. Odenwald, T. J. Sodroski, & G. N. Toller	566	11-C6
THE INTERSTELLAR BORON ABUNDANCE TOWARD ORION M. Jura, David M. Meyer, Isabel Hawkins, & Jason A. Cardelli	598	11-F1
AB INITIO CHARACTERIZATION OF M_8CCH , M_8CCH , AND M_8C_2 AND PATHWAYS TO THEIR FORMATION IN THE INTERSTELLAR MEDIUM David E. Woon	602	11-F8

FAR-INFRARED WATER EMISSION FROM MAGNETOHYDRODYNAMIC SHOCK WAVES Michael J. Kaufman & David A. Neufeld	Page 611	Fiche 11-G5
INFRARED EMISSIVITY OF HD IN MAGNETOHYDRODYNAMIC SHOCKS Ralf Timmermann	631	12-B8
THE ABELL 35 NEBULA INSIDE OUT J. M. Hollis, D. Van Buren, S. N. Vogel, W. A. Feibelman, G. H. Jacoby, & J. A. Pedelty	644	12-C1
K4-55: A BIPOLAR PLANETARY NEBULA OBSERVED NEAR POLE-ON M. A. Guerrero, A. Manchado, & M. Serra-Ricart	651	12-E2
THE H II REGION COMPLEX G5.48-0.24: RADIO CONTINUUM, H I, AND CO OBSERVATIONS Bon-Chul Koo, Kee-Tue Kim, Ho-Gyu Lee, Min-Su Yun, & Paul T. P. Ho	662	12-F6
HIGH-VELOCITY AMMONIA EMISSION ASSOCIATED WITH THE YOUNG STELLAR OBJECT SERPENS FIRS 1 Salvador Curiel, Luis F. Rodríguez, José F. Gómez, José M. Torrelles, Paul T. P. Ho, & Carlos Eiroa	677	13-A2
POTENTIAL PROTOSTARS IN CLOUD CORES: H ₂ CO OBSERVATIONS OF SERPENS Robert L. Hurt, Mary Barsony, & Alwyn Wootten	686	13-B1
MAGNETIC INTERACTION BETWEEN CLASSIC T TAURI STARS AND THEIR ASSOCIATED DISKS Jianke Li	696	13-C1
ON THE NONLINEAR EVOLUTION OF MAGNETOHYDRODYNAMIC KELVIN-HELMHOLTZ INSTABILITIES Andrea Malagoli, Gianluigi Bodo, & Robert Rosner	708	13-D2
ON THE INTERPRETATION OF THE ULTRAVIOLET SPECTRA OF SYMBIOTIC STARS AND RECURRENT NOVAE. II. THE 1985 OUTBURST OF RS OPHIUCHI Steven N. Shore, Scott J. Kenyon, Sumner Starrfield, & G. Sonneborn	717	13-E2
ON THE ORIGIN OF THE HIGH SPACE VELOCITIES OF RADIO PULSARS Icko Iben, Jr., & Alexander V. Tutukov	738	13-G7
ON THE ORIGIN OF HYDROGEN-DEFICIENT SUPERGIANTS AND THEIR RELATION TO R CORONAE BOREALIS STARS AND NON-DA WHITE DWARFS Icko Iben, Jr., Alexander V. Tutukov, & Lev R. Yungelson	750	14-A8
CORONA(E) OF AR LACERTAE. I. THE TEMPERATURE AND ABUNDANCE DISTRIBUTION K. P. Singh, N. E. White, & S. A. Drake	766	14-B1
BT MONOCEROTIS: ANOTHER EXTRAORDINARY OLD NOVA James C. White II, Eric M. Schlegel, & R. Kent Honeycutt	777	14-C1
ROSAT X-RAY OBSERVATIONS OF NOVA V1974 CYGNI: THE RISE AND FALL OF THE BRIGHTEST SUPERSOFT X-RAY SOURCE J. Krautter, H. Ögelman, S. Starrfield, R. Wichmann, & E. Pfeffermann	788	14-D1
SEISMOLOGY OF 7 BOOTIS D. B. Guenther & P. Demarque	798	14-E1
ANALYSIS OF THE LATE OPTICAL SPECTRA OF SN 1993J John C. Houck & Claes Fransson	811	14-G1
INTERPRETATION OF THE OBSERVED PLASMA "TURBULENT" VELOCITIES AS A RESULT OF MAGNETIC RECONNECTION IN SOLAR FLARES Ester Anionucci, Carlo Benna, & Boris V. Somov	833	15-A1
STRUCTURE AND DYNAMICS OF MAGNETIC RECONNECTION IN A SOLAR FLARE Saku Tsuneta	840	15-B8
A SEARCH FOR ASYMMETRIC FLOWS IN YOUNG ACTIVE REGIONS G. Cauzzi, R. C. Canfield, & G. H. Fisher	850	15-C1
FLARES AND THE MAGNETIC NONPOTENTIALITY Jingxiu Wang, Zhongxian Shi, Huaning Wang, & Yanping Lü	861	15-D1
WAVES IN RADIATING FLUIDS T. J. Bogdan, M. Knölker, K. B. MacGregor, & EJ. Kim	879	15-F6
OPAL EQUATION-OF-STATE TABLES FOR ASTROPHYSICAL APPLICATIONS Forrest J. Rogers, Fritz J. Swenson, & Carlos A. Iglesias	902	16-A4
ERRATUM		
OBSERVABLE PROPERTIES OF X-RAY-HEATED WINDS IN ACTIVE GALACTIC NUCLEI: WARM REFLECTORS AND WARM ABSORBERS J. H. Krolik & G. A. Kriss	909	16-B1

